Abstract Submitted
for the MAR07 Meeting of
The American Physical Society

Nonperturbative Scaling of the Disorder Quenched Kondo Effect[1]
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The quenching of the Kondo effect in weakly disordered metals with dilute magnetic impurities is studied by means of the numerical renormalisation group method. Using the one particle basis of a disordered tight binding model on a square latttice of size L, we calculate the temperature dependence of the local magnetic susceptibility. We find a finie probability that the magnetic moment remains unscreened at the lowest temperatures. This probability is calculated as function of the exchange coupling J,lattice size L and disorder amplitude W. These results are compared with analytical and numerical methods, based on the solution of the self consistent 1-loop equation (Nagaoka-Suhl), as well as with the numerical soultion of the 2-loop renormalisation group equation. Experimental consequences for disordered metals are studied. In particular, it is shown that the presence of magnetic impurities with small Kondo temperatures enhances the electron's dephasing rate at low temperatures in comparison to the clean metal case.

[1]DFG-SFB668-B2

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Date submitted: 21 Nov 2006 Electronic form version 1.4